

Claims

1. A magnetic head which is mounted on a rotary drum capable of allowing a tape magnetic recording medium to run thereon and moves with the rotation of said rotary drum, so as to perform recording on said tape magnetic recording medium or reproducing from said tape magnetic recording medium, said magnetic head comprising:

a surface for facing said tape magnetic recording medium and for producing hydrodynamic interference with said tape magnetic recording medium while moving by said rotation; and

a recording/reproducing portion for contacting said tape magnetic recording medium to produce magnetic interference therewith, wherein:

said surface is a smooth flat surface; and

said recording/reproducing portion is placed in an area where said tape magnetic recording medium contacts said surface by the hydrodynamic interference and is provided so as to be able to perform at least either recording or reproducing by magnetic interference by contacting said tape magnetic recording medium.

2. A magnetic head which is mounted on a rotary drum capable of allowing a tape magnetic recording medium to run thereon and moves with the rotation of said rotary drum, so as to perform recording on said tape magnetic recording medium or reproducing from said tape magnetic recording medium, said magnetic head comprising:

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a surface for facing said tape magnetic recording medium and for performing hydrodynamic interference with said tape magnetic recording medium while moving by said rotation; and

a recording/reproducing portion for producing magnetic interference with said tape magnetic recording medium in a non-contact state, wherein

said surface is a smooth flat surface; and

said recording/reproducing portion is placed outside an area where said tape magnetic recording medium contacts said surface by the hydrodynamic interference and is provided so as to be able to perform at least either recording or reproducing by the magnetic interference with said tape magnetic recording medium in a non-contact state.

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3. The magnetic head according to Claim 1 or 2, wherein said surface facing to said tape magnetic recording medium is a smooth curved surface having a curvature gentler than the curvature of said rotary drum.

4. A recording and reproducing method for a tape magnetic recording medium, wherein

a smooth flat surface or a smooth curved surface having a curvature gentler than a curvature of a rotary drum is provided on the surface of said rotary drum having a cylindrical surface, a recording/reproducing portion for producing magnetic interference

with a tape magnetic recording medium is placed on said smooth flat surface or on said smooth curved surface, and said tape magnetic recording medium is made close to said rotary drum rotating to occur pressure reduction by the hydrodynamic interference between said smooth flat surface or said smooth curved surface and said tape magnetic recording medium, whereby at least either recording or reproduction is performed by contacting said tape magnetic recording medium to said recording/reproducing portion, or whereby said pressure reduction allows said tape magnetic recording medium to approach said recording/reproducing portion to a distance close to the minimum distance capable of producing mutual magnetic interference to perform at least either recording or reproducing.

5. A rotary magnetic head mechanism, comprising
- a rotary drum having a cylindrical surface to allow a tape magnetic recording medium to run thereon and having a magnetic head which can rotate, wherein:
 - said magnetic head comprises:
 - a surface for facing said tape magnetic recording medium and for producing hydrodynamic interference with said tape magnetic recording medium while said rotary drum rotates; and
 - a recording/reproducing portion for performing at least either recording or reproducing by producing the

magnetic interference with said tape magnetic recording medium, wherein:

said surface is a smooth flat surface;

said recording/reproducing portion is placed on said surface in an area where said tape magnetic recording medium contacts said surface by the hydrodynamic interference; and

the height of each portion of said magnetic head is set so as not to exceed the height of said cylindrical surface of said rotary drum.

6. A rotary magnetic head mechanism, comprising
a rotary drum having a cylindrical surface for allowing a tape magnetic recording medium to run thereon and having a magnetic head which can rotate, wherein:

said magnetic head comprises:

a surface for facing said tape magnetic recording medium and for producing hydrodynamic interference with said tape magnetic recording medium while said rotary drum rotates; and

a recording/reproducing portion for performing at least either recording or reproducing by producing magnetic interference with said tape magnetic recording medium, wherein

said surface is a smooth flat surface;

said recording/reproducing portion is placed on said surface in an area where said tape magnetic recording medium contacts said surface by hydrodynamic interference; and

said magnetic head is disposed so as to project from said cylindrical surface of said rotary drum.

7. A rotary magnetic head mechanism, comprising
a rotary drum, comprising:

a cylindrical surface for allowing a tape magnetic recording medium to run thereon;

a concave window portion having an opening on said cylindrical surface;

a magnetic head provided inside said window portion;
and

a concave channel formed between said window portion wall surface and said magnetic head wall surface, wherein:

said magnetic head comprises:

a surface for facing said tape magnetic recording medium and for producing hydrodynamic interference with said tape magnetic recording medium while said rotary drum rotates; and

a recording/reproducing portion for performing at least either recording or reproducing by producing magnetic interference with said tape magnetic recording medium, wherein

said surface is a smooth flat surface;

said recording/reproducing portion is placed on said surface in an area where said tape magnetic recording medium contacts said surface by hydrodynamic interference; and

the height of each portion of said magnetic head is set so as not to exceed the height of said cylindrical surface of said rotary drum.

8. A rotary magnetic head mechanism, comprising a rotary drum, comprising:

a cylindrical surface for allowing the tape magnetic recording medium to run thereon;

a concave window portion having an opening on said cylindrical surface;

a magnetic head provided inside said window portion;

and

a concave channel formed between said window portion wall surface and said magnetic head wall surface, wherein

said magnetic head comprises:

a surface for facing said tape magnetic recording medium and for producing hydrodynamic interference with said tape magnetic recording medium while said rotary drum rotates; and

a recording/reproducing portion for performing at least either recording or reproducing by producing magnetic interference with said tape magnetic recording medium, wherein

said surface is a smooth flat surface;

said recording/reproducing portion is disposed on said surface in an area where said tape magnetic recording medium contacts said surface by hydrodynamic interference; and

said magnetic head is provided so as to project from said cylindrical surface of said rotary drum.

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The rotary magnetic head mechanism according to Claim 5, 6, 7 or 8, wherein

said surface for facing said tape magnetic recording medium is a smooth curved surface having the curvature gentler than the curvature of said rotary drum.

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